

## **STATEMENT OF BASIS**

PERMITTEE: Lexco Inc.

FACILITY: Cottonwood Mine

PERMIT NO: UT-0025259

RESPONSIBLE PERSON: James M. Lekas, President  
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PERMIT TYPE: Permit Renewal, Minor Industrial, Indian Country

### **Background Information**

This statement of basis is for the renewal of the NPDES permit UT-0025259. The permittee is Lexco Inc, a privately held company headquartered in Vernal, Utah. The company's business is nonmetallic mineral mining, excluding fuels (Standard Industrial Classification (SIC) code 1499). The facility covered by this permit is the company's Cottonwood mine, where gilsonite is mined. The mine is located approximately 38 miles due south of Vernal, Utah, in the south 1/2 of Section 35, Township 10 South, Range 21 East in Uintah County, Utah. The approximate latitude and longitude of the mine site is 39°54' 00" N and 109° 31' 19" W. It is located within the external boundaries of the Uintah and Ouray Indian Reservation.

Gilsonite is a black, lustrous asphaltic mineral and is brittle. At the Cottonwood mine site the gilsonite vein is approximately 3 feet wide, has nearly a vertical dip, and a strike of approximately 20 degrees north of west. Although the gilsonite vein extends to the surface, the current mining practice is to have a mine shaft go down vertically some distance before the mine is expanded horizontally along the vein in addition to going deeper. This reduces the amount of opening into the mine, with safety being a major consideration. In some respects, a gilsonite mine is like a long hallway that is a few feet wide and very high. Currently there are three active mine shafts at the Cottonwood Mine (i.e., Mine #1, Mine #2, and Mine #3.) Based on the map submitted with the application for permit renewal, Mine #1 is in the middle and Mine #2 is located approximately 1,000 to 1,200 feet the WNW and Mine #3 is located approximately 1,500 to 1,700 feet to the ESE of Mine #1. Mines #1 and #2 are connected underground.

Pneumatic tools are used to chip the ore from the gilsonite vein. After the ore is conveyed to the surface, it is trucked to a facility in Randlett, Utah, for further processing and/or distribution. No processing of gilsonite occurs at the Cottonwood mine.

With the exception of storm water runoff, the only discharge at the Cottonwood Mine is ground water that is pumped from the mines. Currently there is only one discharge at the site. It is ground water that has flowed into Mines #1 and #2 and is pumped to the surface via the shaft for Mine #2. Water generally is not encountered in the mines until they are down about 340 feet. Mines #1 and #2 are down over 600 feet, but mine #3 is not deep enough yet to encounter water. In anticipation of possibly needing to discharge from Mine #3 in the future, the permittee in a letter of April 14, 2008, amended the permit renewal application by requesting a future outfall #002 associated with Mine #3 be included in the renewal permit. According to the permittee, water flows into Mines #1 and #2 at the rate of about 4-5 gpm. As the mines go deeper, the rate of water inflow does not seem to increase. The water seems to come from the more recently exposed surfaces. Those surfaces that have been exposed longer tend to dry out. Normally the water is pumped out of the mines in the morning at the start of the workday. The rate of discharge reportedly is about 45 to 50 gpm, based on a measurement using a 5 gallon bucket and a stop watch. The horsepower of the pump has periodically been increased as the mine has gotten deeper and the pumping head has increased.

The amount of water pumped from Mines #1 and 2 depends to a certain extent on the length of time since water was previously pumped from the mine(s). Over a 24-hour period, approximately 7,000 gallons of water could accumulate. The rate of inflow possibly may decrease as the water depth in the mine increases, but a significant amount still might accumulate over a period of time. It is possible to not have any mining activity occur in a mine(s) for several days and possibly a few weeks, with no water being pumped from the mine(s) during that time. When mining activity is resumed, it would be necessary to first pump out the accumulated water. The application for permit renewal gives the long term average amount of water discharged as 7,200 gallons per day and the maximum amount as 36,000 gallons in a day, with discharges occurring about 208 days per year.

There are effluent limitations guidelines (ELG) (40 CFR 436, Subpart F – Asphaltic Mineral Subcategory) that apply to the mining of gilsonite. (Note: In 40 CFR Part 436.60, the word “gilsonite” is misspelled as “oilsonite.”) The ELG require that there be no discharge of process waste water pollutants. There is an exception for the overflow due to a 1 in 10 year, 24-hour rainfall event. The ELG do not specify any limitations for the discharge of mine water.

The initial NPDES permit for this facility was issued by the State of Utah and was for the discharge of mine water. After it was learned that the facility is located in Indian country, the next permit was issued by EPA in August 2002 and it expired June 30, 2007. The permittee had submitted a renewal application and the permit was administratively extended. The previous permit authorized one outfall, which was the discharge from Mine #2. The effluent limitations in the previous permit are given in the following table:

Effluent Characteristic	Effluent Limitation		
	30-Day Average <u>a/</u>	7-Day Average <u>a/</u>	Daily Maximum <u>a/</u>
Total Suspended Solids, mg/L	25	35	N/A
Total Dissolved Solids, mg/L	N/A	N/A	3500
Oil and Grease, mg/L	N/A	N/A	10
The pH of the discharge shall not be less than 6.5 nor greater than 9.0 at any time.			
The Total Dissolved Solids from all outfalls shall not be greater than one (1) ton per day.			
<b>There shall be no discharge of process water or wastes.</b>			
There shall be no discharge of sanitary wastes.			
The discharge shall be free from substances in amounts which would cause a visible sheen or visible deposits in the receiving water or adjoining shoreline.			
There shall be no discharge of floating solids or visible foam in other than trace amounts			

The effluent limitations on total suspended solids (TSS) and pH were based on the State of Utah's regulations in the initial permit and were continued in the second permit. The limitation on oil and grease was based on EPA Region 8 policy and best professional judgement (BPJ). The concentration limitation (3500 mg/L) and load limitation of one ton per day on total dissolved solids (TDS) were based on the Colorado River Basin Salinity Control Forum guidelines. The no discharge requirement of process water or wastes was based on the ELG at 40 CFR Part 436 – Subpart F. The requirement that there be no discharge of sanitary wastes was in the initial permit and was continued in the second permit.

According to the permit application, treatment consists of an inline strainer and pH adjustment as necessary. Outfall 001 consists of a flexible, black plastic pipe about 2 inches in diameter that comes out of the shaft for Mine #2 and goes to a nearby ephemeral drainageway. The limited amount of self-monitoring data that were available in the permit file and PCS/ICIS (Permit compliance System and Integrated Compliance Information System) are summarized in the table below. These data indicate that the discharge is in compliance with the permit limitations.

Date	Flow, MGD		O & G	pH, su		Total Diss. Solids		TSS
Quarter	Ave.	Max.	Visual	Min.	Max.	mg/L	Tons/day	mg/L
9/30/03	0.0016	0.00164	0	8.6	9.0	2960	0.02	6
12/31/03	0.0015	0.0034	0	8.2	9.0	3050	0.043	5
12/31/06	0.0225	0.036	0	8.42	8.9	2770	0.4158	4
3/31/07	0.0225	0.036	0	8.38	8.9	2650	0.3978	0
6/30/07	0.0225	0.0414	0	8.9	8.9	2710	0.468	0

The permittee has considered constructing a pond for use in watering wildlife and possibly eliminating the discharge. However, the permittee felt that the requirements of the Bureau of Land Management (BLM) for constructing a pond did not make it cost effective.

### **Receiving Waters:**

Outfall 001 discharges to an unnamed ephemeral drainageway that is tributary to Cottonwood Wash, which is tributary to the White River. Outfall 002 would discharge to another unnamed ephemeral drainageway that is ultimately tributary to the White River upstream of where Cottonwood Wash flows into the White River. The distances from the Outfall 001 and Outfall 002 to the White River appear to be at least 12 miles and 9 miles, respectively. The discharges most likely would not reach the White River except when the drainageways are flowing due to precipitation and/or snowmelt.

### **Water Quality Considerations:**

The Ute Indian Tribe has not adopted water quality standards for Uintah and Ouray Indian Reservation. Outside the reservation the State of Utah has classified the White River and tributaries, except for Bitter Creek and tributaries, as Class 2B and Class 3B. The 2B classification is to be protected for secondary contact recreation such as boating, wading, or similar uses. The 3B classification is to be protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain. The data submitted with the application for permit renewal indicate that the concentration of metals are at levels below established water quality criteria for Class 2B and 3B waters and therefore the discharge does not show reasonable potential to exceed a water quality criteria. No water quality based limits on metals are necessary for this permit because of the lack of reasonable potential. The effluent limitations that were in the previous permit and the effluent limitations in this permit should not interfere with designated aquatic life and recreation uses. Discharges from this facility would not cause or contribute to a violation of any Utah water quality standard at the border of the Uintah and Ouray Indian Reservation.

### **Effluent Limitations:**

The effluent limitations are given in Part 1.3.1 of the renewal permit and are the same as in the previous permit except that the quantity limitations on TDS have been changed from 1 ton per day to 350 tons per year. The reason for the change is provide flexibility in dealing with the larger volumes of water that could be pumped in a single day after a period of inactivity at the mines and water may also be pumped from Mine #3 sometime in the future. The 1 ton per day limitation on TDS would be reached if the TDS concentration was 3,000 mg/L and about 80,000 gallons of water was pumped in one day. That possibly might occur if the mining operations were stopped for three weeks or longer and water was being pumped from Outfalls 001 and 002 at the same time. The Colorado River Basin Salinity Control Forum's guidelines provide for 1 ton of TDS per day or 350 tons per year. The limitation will be expressed as 350 tons per calendar year so that the time frame for the year is specified. For the year that the permit is issued, the permittee is not required to calculate the accumulated tons of TDS discharged during the portion of the year before the effective date of the permit. Based on past monitoring results,

the total quantity of TDS discharged the first year of this permit should easily be less than the permit limitation of 350 tons per year.

The 30-day average effluent limitation of 25 mg/L and the 7-day average effluent limitation of 35 mg/L on total suspended solids (TSS) were in the previous permits and were initially based on the State of Utah's effluent requirements, which are expressed as concentration limitations. It is not reasonable to have mass limitations on TSS because the daily flow may vary, depending on circumstances (e.g., periods of no pumping for several days.) Dilution to meet the concentration limitations on TSS is highly unlikely due to the scarcity of water in the area.

### **Self-Monitoring Requirements:**

The self-monitoring requirements are given in Part 1.3.2 of the permit. The monitoring requirements have been changed somewhat from the previous permit in that this permit specifies determining the estimated total volume of water discharged during the reporting period instead of monthly monitoring the rate of discharge in million gallons per day. The permit gives the permittee the option of estimating the total volume of water discharged based on approximate rate of discharge and approximate total pumping time for the reporting period or using a water meter to measure the volume of water discharged. The permit also requires the permittee to monitor the approximate rate of discharge at least quarterly if the approximate volume of water discharged is based on approximate rate of discharge and pumping time. This is to be done at approximately three month intervals. The intent is to not have "back-to-back" flow measurements that could occur if a flow rate measurement is done at the end of one reporting period and the next flow measurement is done at the start of the next reporting period. If the pumping system is modified so as to significantly affect the rate of discharge (e.g., increasing the horsepower of the pump), the approximate rate of discharge is to be determined promptly after the change is made. The rate of discharge may be determined by using a stop watch and a container of known volume into which the water may be pumped. The container should be large enough so that it takes 15 seconds or longer to fill to the known volume level. The rate of discharge does not have to be determined if a water meter is used to determine the volume of water discharged.

In addition to the tons of TDS discharged from each outfall during the reporting period, the permittee must also report the total tons of TDS discharged from all outfalls since the start of the calendar year or the effective date of the permit, whichever is less time.

The reporting period will be calendar quarters. This was done because the limitation of 350 tons of TDS per year specifies the calendar year.

### **Storm Water Requirements:**

The storm water runoff from those areas of the mine site where activity occurs and/or materials are stored is considered "associated with industrial activity" and therefore requires NPDES permit coverage. The permit requires the development and implementation of a storm water pollution prevention plan (SWPPP) to minimize the discharge of pollutants in the storm water. Part 5 of the permit is titled "Storm Water Management" and specifies in general terms the items

that must be addressed in an effort to minimize the discharge of pollutants. Part 6, "Storm Water Pollution Prevention Plan," specifies the items that must be addressed in a (SWPPP), reporting requirements, etc. Within 60 days after the effective date of the permit, the permittee is required to develop and submit a SWPPP for the mine site to EPA for review and certification. The permittee has indicated that most, if not all of the appropriate storm water management controls are already being implemented. The combination of low precipitation in the area, the nature of the mining operation, and good management practices minimize the potential for the discharge of pollutants in storm water runoff from the site. Because of this low potential, Part 5 of the permit was modified from the normal requirements by deleting Part 5.10, Periodic Visual Inspections of a Facility, and renumbering Part 5.11 to Part 5.10. The part on Periodic Visual Inspections of a Facility required quarterly visual inspections, which are not considered necessary for this facility.

**Miscellaneous:**

The permit will be issued for a period of approximately five years, but not exceeding five years. The effective date and expiration dates of the permit will be determined at the time of issuance. The expiration date will be at the end of the calendar quarter closest to five years from the effective date without exceeding five years.

Permit drafted by Bob Shankland, SEE, Wastewater Unit, 8P-W-WW – August 12, 2008

Permit reviewed by Bruce Kent, EPA, Wastewater Unit, 8P-W-WW – August, 2008